IN THE CLAIMS

Please amend the claims as follows:

1. (Currently Amended) A non-invasive subject-information imaging apparatus comprising:

a light generating unit configured to output light at a plurality of wavelengths and to multiplex the output light on a single optical axis;

a light irradiation unit configured to irradiate the light generated by the light generating unit into a subject to be examined;

a waveguide including a plurality of optical fibers, and configured to guide the light generated by the light generating unit to the irradiation unit;

electroacoustic transducer elements including a plurality of two-dimensionally arrayed conversion elements, and configured to convert acoustic waves from the subject into electrical signals;

transmission means for transmitting ultrasonic waves to the subject by driving said plurality of electroacoustic transducer elements;

reception means for generating a reception signal having reception directivity from said plurality of electrical signals converted by said plurality of electroacoustic transducer elements; and

signal processing means for generating volume data about a living body function by processing a reception signal corresponding to acoustic waves generated in the subject by light radiated from the irradiation unit, and for generating volume data about a tissue morphology by processing a reception signal corresponding to echoes generated in the subject upon transmission of the ultrasonic waves;

wherein said plurality of optical fibers are two-dimensionally laid in gaps between said plurality of conversion elements such that each optical fiber is surrounded by four

adjacent conversion elements.

2. (Previously Presented) An apparatus according to claim 1, wherein the irradiation unit is formed from a plurality of end portions of said plurality of optical fibers, said plurality of end portions being two-dimensionally arrayed.

3. (Previously Presented) An apparatus according to claim 2, wherein said plurality of conversion elements are vertically and horizontally arrayed, and said plurality of end portions of said plurality of optical fibers are discretely arranged in the gaps.

4. (Cancelled)

5. (Original) An apparatus according to claim 2, further comprising optical scanning means for sequentially irradiating the subject with light from said plurality of end portions of said plurality of optical fibers.

6. (Previously Presented) An apparatus according to claim 5, wherein the reception means generates a reception signal corresponding to acoustic waves generated by irradiation of the light, from electrical signals from a predetermined number of conversion elements near an end portion of an optical fiber which has radiated the light.

7. (Original) An apparatus according to claim 2, further comprising optical scanning means for simultaneously radiating light beams from end portions of not less than two optical fibers whose end portions are spaced apart by not less than a predetermined distance.

8. (Previously Presented) An apparatus according to claim 7, wherein the reception means generates a reception signal corresponding to acoustic waves generated by irradiation of the light, from electrical signals from a predetermined number of conversion elements near an end portion of an optical fiber which has radiated the light.

9. (Original) An apparatus according to claim 2, wherein light beams are simultaneously radiated from said plurality of end portions of said plurality of optical fibers.

10. (Previously Presented) An apparatus according to claim 9, wherein the reception means generates a reception signal, corresponding to the end portion of said each optical fiber, from electrical signals from a predetermined number of conversion elements near the end portion of said each optical fiber.

11. (Previously Presented) An apparatus according to claim 2, wherein photoacoustic scanning for generating volume data about the living body function by irradiation of light from the end portion of the optical fiber and detection of an acoustic wave generated upon irradiation of the light by the conversion element, and ultrasonic scanning for generating volume data about the tissue morphology by transmission of an ultrasonic wave by the conversion element and detection of an echo are alternately performed.

12. (Previously Presented) An apparatus according to claim 2, wherein irradiation of light from the end portion of the optical fiber which is performed to generate volume data about the living body function and transmission of an ultrasonic wave by the conversion element which is performed to generate volume data about the tissue morphology are

alternately performed.

13. (Original) An apparatus according to claim 1, wherein the signal processing means generates living body function image data and tissue morphology image data about a single slice from volume data about the living body function and volume data about the tissue morphology.

14. (Previously Presented) An apparatus according to claim 12, wherein the living body function image data and the tissue morphology image data are displayed side by side on a single screen.

15. (Previously Presented) An apparatus according to claim 12, wherein the living body function image data and the tissue morphology image data are superimposed and displayed.

16. (Previously Presented) A non-invasive subject-information imaging method comprising:

outputting light at a plurality of wavelengths and multiplexing the output light on a single optical axis;

irradiating a subject to be examined with the light ~~containing a specific wavelength component~~ using a plurality of optical fibers having two-dimensionally arranged light irradiation positions;

receiving, using a plurality of two-dimensionally arranged, acoustic waves generated in the subject upon the irradiation of light;

driving said plurality of conversion elements to transmit ultrasonic waves in a plurality of directions corresponding to said plurality of light irradiation positions;

receiving, using said plurality of conversion elements, echoes of the ultrasonic waves;

generating volume data about a living body function of the subject on the basis of a reception signal corresponding to the acoustic waves; and

generating volume data about a tissue morphology of the subject on the basis of a reception signal corresponding to the echoes;

wherein said plurality of optical fibers are two-dimensionally laid in gaps between said plurality of conversion elements such that each optical fiber is surrounded by four adjacent conversion elements.

17. (Original) A method according to claim 16, wherein the light is sequentially radiated from said plurality of light irradiation positions.

18. (Original) A method according to claim 16, wherein the light is simultaneously radiated from said plurality of light irradiation positions.

19. (Original) A method according to claim 16, wherein the light is simultaneously radiated from a predetermined number of discrete light irradiation positions of said plurality of light irradiation positions.

20. (Original) A method according to claim 16, wherein the irradiation of light and the transmission of an ultrasonic wave are alternately performed.

21 - 30. (Cancelled)

31. (New) An apparatus according to claim 1, wherein the light generating unit further comprises a multiplexing unit configured to multiplex the light output at the plurality of wavelengths on a single optical axis.

32. (New) An apparatus according to claim 1, wherein the light generating unit is an optical parametrical oscillator laser.